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10/582,593	03/19/2007	William Jones	ACH-3026 US	2189
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EXAMINER				
WALCK, BRIAN D				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/582,593

**Applicant(s)**

JONES ET AL.

**Examiner**

Brian Walck

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 2/12/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 7-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1-8 are pending where claims 1, 7, and 8 have been amended. Claims 7 and 8 have been withdrawn from consideration based on election by original presentation (see below)

### ***Election/Restrictions***

2. Newly amended claims 7-8 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the catalyst of claims 1-6 can be used for a materially different process (such as controlling vehicle exhaust emissions) than the process of claims 7-8.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 7-8 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. **Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4975406 to Frestad et al (hereinafter referred to as Frestad).**

Regarding claims 1 and 3, Frestad discloses an oxidic catalyst comprising at least 50% by weight of  $\text{Al}_2\text{O}_3$  (a trivalent metal, overlaps claimed range of 5-60 wt%), 1-10% of alkaline earth metal oxides (a divalent metal, overlaps claimed range of 5-60

wt%) and 1-50% of rare earth metal oxides (overlaps claimed range of 40-55%) (Frestad, column 3, lines 56-68). In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for  $\text{Al}_2\text{O}_3$ , rare earth metal oxide, and alkaline earth metal oxides that lie within the instantly claimed ranges because Frestad discloses the same utility throughout the disclosed ranges.

Regarding claim 2, there are only six alkaline earth metal oxides to choose from. It would be obvious to one of ordinary skill in the art to select magnesium as the alkaline earth metal oxide given the extremely limited number of choices available.

**5. Claims 1-3 and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over US 4921824 to Chin et al (cited by applicant in IDS; hereinafter referred to as Chin).**

Regarding claim 1-3, Chin discloses an oxidic catalyst comprising at least 25% rare earth oxides (overlapping the claimed range of 40-55%) (Chin, column 3, lines 45-54) and the remainder of the catalyst (i.e. 0-75% of the catalyst, overlapping the claimed ranges of 5-60%) can comprise alumina and magnesia (Chin, column 4, lines 3-16). In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected values for alumina, rare earth metal oxide, and magnesia that lie within

the instantly claimed ranges because Chin discloses the same utility throughout the disclosed ranges.

Regarding claim 6, Chin discloses that the catalyst particle can include a matrix as well as clay, aluminates, and silicates (Chin, column 4, lines 3-16), which are molecular sieves.

**6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4921824 to Chin et al (cited by applicant in IDS; hereinafter referred to as Chin) in view of EP 0554968 A1 to Kim (cited by applicant in IDS).**

Chin discloses an oxidic catalyst composition as described above, and also that the catalyst particle can be prepared by processes known in the art (Chin, column 4, lines 42-43). Chin does not explicitly disclose a process for preparing the catalyst which involves forming a precipitate from a solution containing dissolved divalent, trivalent, and rare earth metal salts, followed by calcination of the precipitate obtained.

Kim discloses a process for forming a  $\text{MgO-La}_2\text{O}_3\text{-Al}_2\text{O}_3$  catalyst wherein the process involves forming a precipitate from a solution containing dissolved divalent, trivalent, and rare earth metal salts, followed by calcination of the precipitate obtained (Kim, figure II).

It would be obvious to one of ordinary skill in the art at the time the invention was made to use the process of Kim to prepare the catalyst composition of Chin. The motivation for doing so is that Chin teaches that the catalyst particle can be prepared by processes known in the art (Chin, column 4, lines 42-43), and Kim is a process known in the art that would be able to produce the catalyst of Chin.

**7. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0554968 A1 to Kim (cited by applicant in IDS) in view of US 4921824 to Chin et al (cited by applicant in IDS; hereinafter referred to as Chin).**

Kim discloses an oxidic catalyst composition comprising 30 to 50 MgO (lying within the claimed range of 5 to 60)/5 to 30  $\text{La}_2\text{O}_3$ /30 to 50  $\text{Al}_2\text{O}_3$  (lying within the claimed range of 5 to 60) which is particularly effective for passivating vanadium during the catalytic cracking of hydrocarbons (Kim, page 2, lines 32-34). Kim does not explicitly disclose that the catalyst should comprise 40-55 wt% of a rare earth metal.

Chin discloses an oxidic catalyst composition used in the catalytic cracking of hydrocarbons which comprises at least 25% and more preferably at least 50% lanthanum oxide in order to passivate metal contaminants, (Chin, column 3, lines 34-54) which may also contain magnesia and alumina (Chin, column 4, lines 3-16), and that the more lanthanum in the catalyst, the better catalyst performance will be (Chin, column 3, lines 34-54).

Regarding claims 1-3, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the composition taught by Kim such that the lanthanum oxide content of the composition is greater than 25%, preferably greater than 50% as taught by Chin (which overlaps the instantly claimed range of 40-55%). The motivation for doing so would be to improve the effect the composition of Kim has on passivating vanadium. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists (see MPEP 2144.05 [R-5]). It would have been obvious to one of ordinary skill in the art at the time

the invention was made to have selected values for aluminum oxide, lanthanum oxide, and magnesium oxide that lie within the instantly claimed ranges because Kim in view of Chin discloses the same utility throughout the disclosed ranges.

Regarding claim 4, Kim discloses a process for forming a  $\text{MgO-La}_2\text{O}_3\text{-Al}_2\text{O}_3$  catalyst wherein the process involves forming a precipitate from a solution containing dissolved divalent, trivalent, and rare earth metal salts, followed by calcination of the precipitate obtained (Kim, figure II).

Regarding claim 5, a precipitate containing magnesium, lanthanum, and alumina is a physical mixture of a divalent, a trivalent, and a rare earth metal source, so Kim anticipates claim 5 as well.

Regarding claim 6, Kim discloses that the oxidic catalyst composition can be incorporated in FCC catalyst particles which contain zeolite (i.e. molecular sieve) and a matrix.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

The arguments with respect to claim 7-8 are moot as claims 7-8 have been amended to be process claims instead of use claims.

The arguments with respect to claims 1-3, 5-6 are directed toward what US 5,364,516 to Kumar does and does not teach. These arguments are moot as no rejections are reliant on Kumar now due to applicant's amendments to the claims.

The arguments with respect to claim 4 is directed toward why Kumar can not be combined with Kim as well as that Kumar and Kim teach additional steps that are not claimed. These arguments are moot as no rejection is reliant upon Kumar due to applicant's amendments to the claims. However, as Kim has been relied upon in new grounds of rejection, examiner will address the argument that Kim must be relied upon as a whole and that "Examiner appears to ignore the aging steps, pH adjustment steps, etc., required in the teachings of Kim").

Although Kim does teach more steps than applicant claims, applicant has claimed in instant claim 4 that the process "involves" the calcination of a physical mixture of a divalent, trivalent, and a rare earth metal source. The use of the word "involves" means that the claimed process can comprise additional steps. Therefore a prior art process such as Kim which comprises the calcination of a physical mixture of a divalent, a trivalent, and a rare earth metal source (as well as other steps) would still read on instant claim 4 as it "involves" the instantly claimed steps.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not



mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Walck whose telephone number is (571)270-5905. The examiner can normally be reached on Monday-Friday 9 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

Application/Control Number: 10/582,593  
Art Unit: 1793

Page 9

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Examiner, Art Unit 1793